OBSERVATIONS

ON

THE CHOLERA MORBUS

OF

INDIA:

A LETTER

ADDRESSED TO

THE HONOURABLE THE COURT OF DIRECTORS

OF THE

East-India Company.

COLL. REG. MED. EDIN.

By WHITELAW AINSLIE, M.D. M.R.A.S.
Late of the Medical Staff of Southern India.

Nec poterat quisquam reperiri quem neque morbus,
Nec mors nec luctus tentaret tempore tali. LUCRETIUS, LIB. VI.

Non est in medico semper relevetur ut æger;
Interdùm doctâ plus valet arte malum. OVID.

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TO THE

HON. THE COURT OF DIRECTORS

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East-India Company.

HONOURABLE SIRS,

IT has been said, I think wisely, by Dr. Maclean, in his valuable work regarding Epidemic and Pestilential Diseases, "that, in the absence of those dreadful visitations, or in the slight degrees of epidemics, men may be got to reason coolly respecting their cause: but, when desolation and death begin to thicken around, and members of the medical faculty to share in the calamity, reason becomes silent, and the

phantom of contagion, like ghosts in darkness, takes undisputed possession of the unconfirmed mind." (Vol. i. page 77.)

Such are the words of a very powerful and intelligent writer; and such I have taken the liberty of selecting, as a short *proem* for my present respectful address. Give me leave then, gentlemen, to observe, that a residence of nearly thirty years in India, in the medical line, on the Madras Establishment, during which period I had the happiness to receive, on several occasions, the thanks of your Honourable Court for my professional exertions, emboldens me at this time to address you, in the hope that having, as President of a Committee (1) which was appointed to inquire into the nature of the Epidemic which prevailed in Southern India, in the years 1809, 1810, and 1811, had occasion to

(1) The Report rendered by this Committee was published in London in 1816, and has been reviewed, in a very flattering manner, in the Edinburgh Medical and Surgical Journal, for January 1817, and for October 1820.

witness very closely the misery springing from such devastating evils, I may be allowed, on the present occasion, to express an anxiety which I feel, in common with many of my countrymen, regarding that scourge, not less to be lamented, though very different in character, which, for some years past, has proved so great a source of affliction in our Asiatic dominions: I mean the Epidemic Cholera.

On a subject which has occupied the attention of so many able men, it may appear presumption in me, who actually never saw the disease in the form it has lately assumed, to offer an opinion; but as, from my peculiar charges, at different times, on the Coromandel Coast, I had numerous opportunities of treating the *Sporadic* Cholera Morbus, several cases of which were accompanied with nearly every symptom which attends the malady that now rages in India; and, as it appears from most respectable authority, that the two affections are

only different degrees of the same disorder, the Cholera Morbus being the lesser,(2) and the Epidemic Cholera the greater; I trust I may be forgiven if I should request your attention for a short time, and I need scarcely add, how gratified I should be were my humble endeavours to prove instrumental in our advancing, even one single step, towards elucidating what seems hitherto to have perplexed many, and in its peculiar character to be at variance with several long-established opinions.

I happened to be abroad, when the first unwelcome accounts of what was then called the *new disease* reached England; and on my return, having understood from every quarter that it was an affection totally different from any thing that I had ever seen in India, I gave it but little attention. The disorder, however, still continuing, though after certain intervals and with varying degrees of severity, I was lately induced

(2) See Mr. Orton's Essay on the Epidemic Cholera, vol. i. page 33.

to make more minute inquiry respecting it, and had kindly sent to me most of the publications on the subject which have been given to the world.

Without detaining your Honourable Court with a particular scientific detail, I shall simply state that, by all I have read, I have no doubt but that Mr. Orton is perfectly correct in supposing that Cholera Morbus and the Epidemic Cholera, are *boná fide* the same disease; but I must add, there is at the same time this difference, that the latter has not only every common symptom aggravated, but others of a more serious nature superinduced. Now, it may be asked, why should the disease, having become epidemic, be thereby rendered worse? We can only say, in reply, that so it is with every other malady undergoing the same change; with dysentery, with fever, with catarrh, when it passes into influenza, which it has repeatedly done in the Bengal Provinces, &c. &c.

The simple Sporadic Cholera Morbus, that is,

the disorder when it occurs but occasionally, and cannot be ascribed to any particular state of the air, I found in India usually to attack in the following manner. The patient feels what he calls out of sorts; he has a disrelish for food, and complains of squeamishness, a slight degree of head-ache and chilliness; if questioned about his bowels, he will, in all probability, tell you that he is bound; his tongue at this period is not foul, but his pulse is considerably quickened, and small. This state does not last long, and is succeeded by vomiting; at first merely the contents of the stomach are thrown up; on diluents being swallowed they are soon rejected, and continue to be as often as they are taken, for perhaps three or more hours together; they are, so rejected, not unfrequently of a whitish tinge, as if from something that they had met with in the stomach, and if chemically examined, will be found to be always more or less of an acescent nature. The repeated and long continued vomiting is truly distressing, the sufferer becoming

gradually more and more exhausted ; a clammy sweat appears upon his brow ; his pulse is scarcely to be felt ; he speaks and breathes with some difficulty, and now requires to be supported in bed, while he vomits : at length, from the painful and frequent exertion in retching, bile, by regurgitation, finds its way into the stomach, and appears to give the first check to the disease, by, allow me to say, somehow correcting, to a certain extent, the immediate cause of the sickness, which I believe to be an acid, and one so tenacious, that simple dilution has nine times in ten no effect whatever in dislodging it. The bile that has been poured into the stomach is vomited up; the portion which goes downwards, and that is often much, acts as a natural purge, which bile always does when not intimately blended with the chyme, and relieves the patient greatly : still, however, even in cases that are by no means reckoned severe, the vomiting and purging will continue at intervals

for several hours longer, but with infinitely less straining, till the whole of the offending matter is evacuated; when he, who but a short time before seemed about to breathe his last, falls into a sound sleep, from which he wakes free from all complaint; his pulse having become slower and fuller; the perspiration on his forehead warm and more fluent; in a word, when a healthy reaction has taken place over the whole frame.

Thus have I described to you, Honourable Sirs, a favourable case, of what is termed simple Sporadic Cholera Morbus, and the career it would run if no medicine was administered—nature herself being the only physician. In other instances, however, when the person attacked is constitutionally weaker or more irritable; when the exciting cause perhaps has been stronger, or the season of the year hostile, a more alarming *grade* of the disorder ensues; in fact, accompanied with many of the symptoms which characterize the Epidemic affection, as it now

commits its ravages in Hindostan: the previous languor is much greater, attended with a little vertigo, or feeling as if from intoxication; vomiting sooner comes on, together with a still more distressing retching, and sometimes insatiable thirst; a heat or burning pain is complained of in the epigastric region (3); a purging succeeds to the *Hyperemesis* after a much shorter period, when a great deal of turbid or sometimes greenish-coloured fluid is evacuated, on many occasions not at all mixed with bile: extreme debility now but too surely proclaims the danger; the pulse sinks, so as rather to flutter than beat under the finger; the countenance undergoes a strange collapse, and changes its

(3) Occasioned, I should presume, by an acrimony arising from acidity; the acid produced in the stomach in dyspeptic cases is a very peculiar one (by dyspeptic I here mean indigestion of any kind). *Darwin* has given us much curious information regarding it; M. *Perperes* has told us, that it bears an affinity to the acetus. *Pemberton* notices it particularly in his work on the Diseases of the Abdominal Viscera, pages 126 and 127.

expression; spasm assails the muscles of the legs, hands, thighs and abdomen, which become gradually more and more violent, should bile not be poured into the duodenum; the breathing is laborious, the eyes lose their lustre, and the vessels of the Tunica Adnata become red with blood. There is generally, at this time, great mental agony depicted in the countenance, though the miserable man cannot express it by words: a cold moisture is felt on the brow; the extremities no longer retain their animal heat, appearing shrivelled and pale; and nature, if the medical aid afforded proves insufficient, is ere long completely exhausted, and the patient expires; all the spasms generally disappearing some time before he breathes his last. Such severe sporadic cases of the Cholera Morbus, it must be confessed, were, in my time, of very rare occurrence in India, yet such I have seen and had occasion to lament.

There is no doubt but that some of the ancients not only knew, but have well described

the Cholera Morbus in its most dangerous type; such as *Aetius Aretæus,* and especially *Celsus,* who gives us a perfect picture of it, noticing, amongst other signs, "Pulsus celer, et frequens, animi deliquium, crurum et brachiorum contractura." I should presume, however, from his practice, that he could not have been very successful in the treatment of it, having trusted much to wine as a remedy (4). Sydenham found it prevailing as an Epidemic in England in 1669; he very minutely details the peculiar symptoms which distinguish it, and from his saying nothing of bile, we may reasonably conclude that, in the cases he saw, it did not form a remarkable feature; a proof that it was the disease in its most severe form. By Mr. W. Scott's admirable report on the Epidemic Cholera, as it appears in the districts subject to the Presidency of Fort St. George, it would seem, from a record of the Medical Board under date 1787, that the

(4) See Celsus, lib. iv. chap. 11.

Cholera Morbus then existed in the *Amboor* valley, attended with violent spasms and prostration of strength: there is also noticed, in the same report (page 246), a disorder which Mr. Alexander Anderson had occasion to treat at Vellore, in 1794, which leaves no doubt but that it was the Spasmodic Cholera in its most terrific shape; many of those who were attacked not surviving more than three hours, after being first seized. Sonnerat describes it well, such as he found it on the Coromandel Coast in 1780: it came like a pestiferous whirlwind upon a division of Bengal troops under the medical charge of Mr. Jameson, at Ganjam, in 1781; men previously in perfect health dropping down in dozens: from that period up to 1790, Mr. Scott observes, that the disorder was common, as an epidemic, in various parts of India. Curtis, in the account he has given us of the maladies of that country, is sufficiently distinct with respect to its mischievous effects (Mort de Chien) at Trincomallie in 1782; and Girdlestone, in his Es-

say on the Spasmodic Affections of India, though he considers the spasms in this complaint as a distinct disease, draws but too powerful a sketch (5) of the evil in question at Madras in 1782. I can not learn that the Cholera (6) has hitherto attracted much attention from foreign practitioners. *Pierre Campet* makes memorable mention of it in his *Maladies graves de la tone zorride ;* and Monsieur *J. J. Deville* has written a short work on it, which was published in Paris in

(5) Girdlestone does not even mention the word *Cholera*, but under the general head of spasms describes no doubt the Epidemic Cholera ; he speaks of the almost *incessant vomitings*, insatiable thirst, cold sweats, &c. "Several patients," he says, "died in the first hour after the attack." At a meeting of the faculty at Madras, he informs us, it was unanimously judged, that the disease proceeded from *damps from the earth ;* the *not using capsicum, bad arrack, and coffee,* made of stramonium.—See his Essay, page 55.

(6) My excellent and much respected friend, Dr. C. Wilkins, informs me, that he has a perfect recollection of the Cholera Morbus having been epidemic in the Bengal provinces about the year 1782 ; but it does not appear at that time to have reached farther south than Cattack.

1819 (7); he was surgeon of the *Seine*, and had an opportunity of seeing the disease in Bengal in 1818: his *brochure* contains some well detailed cases, and is loud in praise of laudanum, camphor, and ether.

But, severe and occasionally destructive as were the attacks of the Cholera Morbus which were witnessed by the medical men just mentioned, they appear altogether trifling when compared with the affliction, which has now continued for nearly eight years, in our Asiatic territories; where, having passed again from a sporadic into an epidemic disease (8), and taking a much wider range for its work of devastation, it has come upon the world like a very fiend; and, by appearing at seasons, and under circum-

(7) It is entitled " *Mémoire et Observations sur l'Epidemié de Cholera Morbus*," and was read at the Royal Institute of France on the 21st June 1819.

(8) Which it appears first to have done at *Zilla Jessore* in 1817; this is a place lying 100 miles N.E. of Calcutta. See Dr. J. Johnstone's work on the Influence of Hot Climates, page 245.

stances so opposite, has defied alike the practical and ingenious, either exactly to comprehend its peculiar nature, or to establish a mode of treatment, which, by its reasonable success, should afford some well-grounded belief that the cause of the malady had been clearly ascertained.

Mr. Orton, in his work already cited, has given (page 19) a very distinct description of the Epidemic Cholera, dividing it into three stages: it does not appear, however, to have differed materially from the malady in its most violent sporadic form, such as I saw it in India. Another excellent account of it I find by Mr. Charles Daw, in the report of the disorder published under the authority of the Bombay Government: so has Mr. Boyle clearly enumerated its various symptoms in his short *Treatise on the Cholera of India*. With the collected materials of these gentlemen, and several others before them, embracing the recent and more alarming appearances of this formidable enemy, Dr. James

Johnstone, and Dr. Good, with all that talent and discrimination which distinguish them, have given their sentiments fully to the public; so that, as far as regards the *Historia Morbi*, perhaps little remains to be done; a more certainly successful and definite method of treating it must be the fruits of yet greater experience, and close and patient investigation.

Like every other complaint to which the human frame is subject, the Epidemic Cholera differs much in its degree of severity, according to circumstances, connected with natural constitution, diet and exposure to cold, heat or moisture; in some instances, especially in Ceylon, which island it reached in December 1818, and where it would seem to have raged even more violently (9) than in the Peninsula, the patients expired in twelve or fifteen hours from the first

(9) See Marshall's Medical Topography of Ceylon, page 199, where that gentleman observes, that though in a few cases medicine was useful, it ultimately failed in producing a cure.

attack. Mr. Conran notices the peculiarity attending many cases which came under his care, of the total absence of all spasm; and that in others, the sufferers vomited, and were purged, but two or three times (10); nay, there are on record several well authenticated accounts, from which it appears, that so powerful and uncontrolable was the Morbific cause, that vomiting, purging, and spasm, were all in a great measure if not entirely absent. Symptoms resembling those of Hydrophobia have occasionally supervened, nay, Trismus itself is said to have made its appearance; at other times, the vital energies failing, as it were at once, death closed the scene in three hours from the period that the unhappy person first began to complain!

On dissecting the bodies of those who died of this malady, somewhat different reports have been made; generally speaking, however, the blood then drawn is of a dark or purplish

(10) See Mr. Orton's Essay, vol. 1, page 39.

colour; the stomach and bowels have been found distended with gelatinous matter, and sometimes with a fluid of a dirty greyish colour; little sanguinous turgescence has appeared on the surface of the organs, but there was always an absence of the moisture and glossy character of health; the liver has been said to be much enlarged (though by other accounts it has been affirmed that both it and the large intestines had a perfectly natural appearance) (11), the gall-bladder to contain bile of no unusual consistence, and the arterial branches spread over part of the brain have been discovered to be distended with red blood, while the veins in the same situation were replete with that of a peculiar dark hue (12), and in certain instances the

(11) See Mr. Boyle's Treatise on the Cholera of India, page 50.

(12) See Mr. Annesley's well-detailed account of appearances after death, in Mr. Orton's Essay, vol. 1. page 56.

I cannot withhold from mentioning the great professional

zeal

abdomen, when opened, emitted a singular, unnatural, and most offensive odour.

The remote cause of the Epidemic Cholera has called forth much interesting discussion. There are those who consider it as consequent of contagion; others hesitate, and perhaps wisely, about giving a decided opinion, and amongst those is one who has written the last, and with no common ability, on the disease; I mean Mr. W. Scott of Madras: his words are, after having observed, as far as regards the Indian Peninsula, that the progress of the disease from north to south had been affected with surprising regularity:—" It might therefore be inferred, that it has been propagated by infection, yet the par-

zeal which Mr. Annesley has testified in preparing, and bringing with him from India to England, a most interesting and valuable collection of drawings, connected with Morbid Anatomy; they are finished in a very scientific and masterly manner, and are taken from dissections of those who died of Hepatitis, Dysentry, and Cholera Morbus. It is sincerely to be hoped, that the public may soon benefit by that gentleman's most laudable exertions.

ticular evidence that it has been so, from one individual to another or from place to place, is attended with many difficulties." Might I venture to give an opinion, I should say, that as far as I could judge from the *data* before me, it is not contagious. I at one time supposed that it might owe its origin to a peculiar distemperment in the atmosphere, a certain subtile something, not in chemical solution with the component parts of the air, for then there might be a chance of detecting it, but rather suspended in it, and conveyed by it, like a mote in the sun's beam, in a way that we are altogether unacquainted with; but this notion I have lately been induced to relinquish, for reasons which will be explained in another part of this letter.

The changes which daily, and I may add hourly, take place in the atmosphere are great, often rapid, as far as regards weight, temperature of the air, electricity, &c., and we know, that the animal frame, like a fine machine, is to a certain degree susceptible of those changes;

some of us, owing to a particular idiosincracy, are of course more liable than others to be affected by them. I have seen those, and one of them was blind, who never failed to complain of a strange irritability in their nervous system on the approach of rain, while people of a different description have their digestion deranged by a thunder-storm. In endeavouring to find a probable remote cause for the epidemic fever which prevailed in Southern India in the years 1809, 1810, and 1811, I stated in the Report (13), that deviations (14) from the usual order of climate, appeared to me to have had a powerful effect. Celsus (15) has said that those seasons are ever the most salutary which are most uni-

(13) See Medical, Geographical and Agricultural Report, page 108.

(14) Other more specific causes of fever in the Southern Provinces at that time were of an Endemic nature, such as the air of certain ill-ventilated, thick woods and jungles, in narrow valleys, amongst lofty mountains, and that of marshy situations.

(15) See Celsus, lib. ii. cap. 1.

form, cold or hot: from similar sentiments, Hoffman (16) would seem to have deduced his general remote cause of epidemic fever; and it may not be irrelevant here to observe, that the natives of India themselves also ascribe epidemic disorders to like irregularities in the weather, as we learn from the *Ganetamnotum*, an astronomical *Sastrum* to be found in the Sheva Pagoda at Tencoushie, in Tennivelly. Nay, I perceive that the subject has even called the attention of the Persian Medical writers, as may be found by referring to a curious work entitled خفی علای *Khuffi Alāi*, which treats on the art of preserving health, and contains essays on the air, seasons, &c.; it is written by *Ismael Ben Hussein Ben Mohamed Iovany*, Physician to Khuarizin Shaw.

Dr. Charles Maclean, in his work on epidemic diseases, informs us that he believes them to depend on the *undue action* of the atmos-

(16) Vide Med. Rat. Syst. Hoffman, par. i. cap. 1.

phere (17); comprehending all the intermediate degrees of affection, between the slightest catarrh, and the most destructive pestilence. The deviations from the natural order of climate above-mentioned—for instance, rains falling in great abundance at periods when the weather should be dry; scorching winds continuing to blow when the monsoon ought to have made its appearance—those *deviations*, I repeat, and such *undue action* in the atmosphere as Dr. Maclean alludes to, are, however, of too general a character to apply to every case, for as there are different kinds of epidemics, so must there assuredly be a specific difference in the nature of the morbific influence producing each disease: hence, that which brings on influenza cannot be the same as that which gives rise to intermittent fever; nor can the poison, if I may so call it, in the air, which engenders the plague, be homogeneous to that which gives birth to

(17) See his work, vol. i. page 148. See also Dr. Adams's very able *Inquiry into the Laws of Epidemics,* page 18.

small pox or measles. The ancients bestowed much attention on the state of the atmosphere, as a cause of sickness. The very father of physic himself, Hippocrates, wrote on the subject, and Dr. S. Farr, in his very able preliminary discourse to his translation of that great man's *History of Epidemics*, has extended his views with all the skill and acumen of a more advanced age; yet must we allow that little positive knowledge appears to have been obtained with respect to the peculiar characterizing and chemical nature of *miasmata*, and we may safely say, that when Sydenham (18) ascribed endemic derangements to a secret constitution of the air, he gave us as satisfactory an account of the matter as any modern author has yet done.

The malady which we have now so much reason to deplore has prevailed, as Sir Gilbert Blane has remarked on Mr. Corbyn's letter, "to a degree equally violent at all seasons of the year: in regard to temperature, from 40°

(18) See Swan's Sydenham, pages 7 and 8.

to 50° of Fahrenheit, to 90° or 100°; in regard to moisture, during the continuance of almost incessant rain for months, to that dry state of the atmosphere which scarcely leaves a vestige of vegetation on the surface of the earth." It has spared, I should add, neither age nor sex nor condition; it appears sometimes to travel with the wind, which distinguishes the season, and sometimes right against it, and what is most singular, it seems to be so capricious in its nature, if the phrase may be used, that it makes selections of particular tracts and villages, leaving others, though in the vicinity, altogether undisturbed. It has swept over thousands of miles, through countries and climes extremely dissimilar; it has raged on level and unwooded plains, as well as amidst deep woods and ill-ventilated valleys; by the sea-side equally as in places remote from the ocean. It has disappeared for a time, and millions rejoiced; but, alas, it has come again, like an unglutted monster, to terrify and destroy. It attacks with most fury, when

least expected; so differing from the plague and yellow fever, which we know have their peculiar periods of visitation; for instance, the plague in Egypt and Syria from the month of April to July—the yellow fever in America from July to November (19).

Amongst the many ingenious men of our country who have turned their attention to the history of the atmosphere, some of the most distinguished are Dr. Franklin, Priestly, Dr. H. Robertson in his *General View* of it, Mr. Ellis in his *Inquiry* into its changes, Pitta in his *Treatise on the Influence of Climate on the Human Species*, and, perhaps above all, Dr. A. Wilson in his observations on the Influence of Climate, Dr. Jackson on the Epidemic Fever of the South Coast of Spain, Dr. J. Johnson on the same subject applied to tropical regions, and Mr. Forster in his very interesting work on the *Casual and*

(19) On the subject of epidemic and contagious diseases, the reader will find some sound and admirable opinions in the Westminster Review for January 1825, page 134.

Periodical Influence of Atmospherical Causes on Human Health and Disease. The Physicians of the Continent, who have applied their ardent minds to the investigation of those Phenomena, are still more numerous, but I shall not detain your Honourable Court by particularizing them (20); such researches must ever be considered as praiseworthy, and in our state of I may say twilight, if not darkness, regarding the absolute causes of those affections which so often hurl destruction upon the human race, cannot be too much applauded.

In the Medical Report, already mentioned, and which was published in London in 1816, I took occasion to observe, that by the experiments of Abbé Nollet (21) it appeared that the electric

(20) The reader will find a list of their names and writings at the end of Mr. Forster's work.

(21) Abbé Nollet was a celebrated French philosopher: he was born in the diocese of Noyon in 1700, and was contemporary with Duhamil and Jussien; few men have contributed more to the

advancement

fluid had the power of accelerating the growth of vegetables (22); it therefore became a question, whether a diminished quantity, or irregular distribution of it, might not prove injurious to the health of man; and Mr. Forster, in his work above spoken of, informs us (page 41), that during what has been called unhealthy weather by medical men, he has remarked circumstances which appeared to denote an irregular distribution of atmospheric electricity, as evinced by the Electroscope (23), showing at the sickly period a perpetual changing and unevenness in

advancement of science in various branches; his treatises on electricity are published in five volumes, and are replete with much curious matter.

(22) For much most valuable information regarding the functions and physiology of plants, the reader is referred to Mr. A. T. Thompson's excellent Lectures on Botany. To that gentleman is evidently due the merit of having discovered the respiratory organs of plants.—See work, vol. i. page 617.

(23) Which is formed by constructing the electric column into what is called by De Luc, an aerial electroscope for observing the electrical changes which take place in the atmosphere.

the action of the electricity of the air on the instrument. In this manner Mr. Forster has, by his experiments, attempted to trace the connexion betwixt certain peculiarities in the manifestation of electricity, and the unhealthiness of the season; and the investigation is curious: but Mr. Orton has gone yet farther; for still looking towards the atmosphere, he thinks that he has discovered, in a diminished quantity of the electric fluid, the actual cause of the Epidemic Cholera. His concluding words on this point are:— "and if it has been proved that a rarefaction of the air accompanies the prevalence of Cholera, it follows that the disease is accompanied by a diminution of the free electric fluid in the atmosphere; and it is this deficiency, produced in this way and other ways, which I consider as the great cause of the Epidemic."(24) Having then, as he supposes, thus detected and disclosed the more distant source of the calamity, he proceeds

(24) See Mr. Orton's Essay on the Epidemic Cholera.

to draw from it his *proximate cause*, which he conceives to be "*a diminished energy in the brain and nervous system*," consequent of the reduced quantity of the electric fluid lowering the powers of life in all the different organs.

Mr. Scot combats this theory of Mr. Orton, and it must be allowed with great ingenuity; "if," says he, "the principle of life depended upon so mobile, so variable, and destructive a power, would not every living thing be in perpetual danger? And were this subtile fluid so very essential to the living principle of man, should we not see a different distribution of it? Now, in warm regions of the earth, where life abounds, this element is certainly not more plentiful than in more temperate regions, and far from deficient in those frigid territories where no living thing exists."

Mr. Assistant-Surgeon Chapman hazards a question, whether *carbonic acid gas* might not be the remote cause of the cholera, from the malady so often making its appearance near

stagnant pools (see Mr. Scot's Report, page 182); but this supposition must fall to the ground when we reflect how often it shows itself on arid plains at a great distance from marshes; the notion that it may owe its origin to effluvia from particular soils is equally untenable.

Mr. Scot appears to hold cheap the idea of the decayed or *oose* rice having had any share in first bringing on the disorder (a notion which we believe was entertained by Dr. Tytler); and seems rather inclined, though he says nothing positive, to look to oxygen as a probable source from which might be drawn some more satisfactory conclusions: oxygen is no doubt most essential for the maintenance of animal life; and as he justly observes, of all the products of nature there is none so invariable in its presence and its proportionable quantity: now, I should imagine, that it is this very undeviating proportion that it preserves as a component part of the atmospheric air, which ought to prevent it ever being considered, in itself, as a spring of contagious or

epidemic disorder; for, examine the air where you please, on the hills of Malvern, or at the sick bed of a person dying of typhus fever, the proportion of oxygen will be found uniformly the same.

With all due deference to the acknowledged talents of the medical gentlemen whose sentiment I have just stated, with submission to their *local* experience, and certainly with great respect for the scientific research of Mr. Forster, I shall take the liberty of suggesting, that, considering the discoveries lately made by Mr. Gallois, a French Physiologist, and those still more extraordinary of Dr. Wilson Philip on the subject of galvanism, I should conclude, that we might with greater confidence look to that particular modification of electricity, and its variations, for explaining more definitely the remote cause of the epidemic Cholera. Allowing then the truth of Mr. Orton's position, that the proximate cause of the disease is a diminished energy of the brain and nervous system, the question is,

how is this brought about? He says, by a diminution of the free electric fluid in the atmosphere: but, leaving that element strictly called electricity for other (25) mighty purposes, for which it appears to have been particularly designed by the hand of the Creator, namely, producing those phenomena which are continually going on in the great alembic of the atmosphere, connected with thunder, water-spouts, the growth

(25) I do not say this unconscious of all the wonders that are said to have been worked by electricity, as detailed by *Abbé Bertholon, Carpue, Singer, Morgan, &c.*, especially by the first, who, in his work "*De l'Electricité du Corps humaine dans l'état de Santé et de Maladie,*" maintains, that the electricity of the atmosphere has a decided influence on generation, conception, and parturition (p. 435). Later observations, however, appear not altogether to lead to the same results, at least not to the same extent. *Van Marum* found that it had no effect in quickening the pulse; he also observed, that so far from increasing insensible perspiration, electricity had the opposite effect; and, of late years, it seems merely to be considered as a useful stimulus or exciting agent in cases of rigidity of the muscles, indolent tumours, chronic rheumatism, and in certain paralytic affections.

of plants, and the *Aurora Borealis*, as has been beautifully illustrated by *Hawkesbee;* and putting oxygen, however necessary to support life, out of the question, at least as a *cause*, from the fixedness with which it ever preserves its due proportion in the atmospheric air,—let us suppose that it is a somehow altered, diminished, or perverted distribution of the galvanic fluid which particularly exerts its influence (26) on this

(26) It has been ascertained by the experiments of *Pelletan*, as will shortly be more fully noticed, that the human frame is found to possess the galvanic fluid as a component principle. May we not, therefore, suppose, in cases of Cholera, that, owing to a certain state of the atmosphere, the galvanic influence in the air is for a time altered, let us say, becomes less abundant; and that such a state, though it is attended with no bad consequences on the many who are altogether well, may have a very different effect on those who are, from whatever cause, predisposed to suffer from this changed condition: for instance, through fear, grief, indigestion, whether ventricular, extraventricular, or otherwise; and are thereby rendered less able to bear up against the diminished excitement? Nay, may not the predisposition itself be accompanied with a diminished portion of the galvanic principle in the frame of the

occasion, which further produces the sinking of the powers of animal life; in a word, the disease in question. I would not be supposed from this to infer, that galvanism and electricity are two absolutely distinct powers; but we may surely allow, that different modifications of the same original element may have different destinations especially assigned to them for the use of mortals; and we know that a third wonderful agent, magnetism, so admirably suited to the purposes of navigation, has, by the curious discovery of Professor *Oersted*, been almost identified with voltaism; so that when the piles of a voltaic apparatus are connected by a steel wire, that

individual, who, in this way, becomes doubly assailed? How that peculiar state of the air, lessening the quantum of galvanic fluid in it, may be brought about, is a question for philosophy in its higher walks to decide. Great deviations from the natural order of the seasons in tropical countries, for several years together, are known to be ever productive of epidemic calamity, of one kind or other; and at this point I much fear the present limited extent of our science, with regard to atmospheric phenomena, must make us pause.

wire acquires magnetic properties. But I am well aware that I am now getting on very mysterious ground, and may be told, and with truth, that we are not yet acquainted with a free galvanic principle in the air, distinct from electricity; it has never yet been brought down to us from the clouds, as that has been by Romas Cavallo and others. All this is readily granted: but it will, on the other hand, be as readily allowed that there are certain discordances very difficult to reconcile, and which puzzle us not a little; and perhaps one of the most striking of those is, that while *Nollet* found, by his experiments, that electricity appeared to have some effect in hastening the grow of plants, Baron Humboldt soon after ascertained that plants were not at all susceptible of the galvanic influence; thereby differing most essentially from animals, with regard to the living principle. To develop electricity, mechanical friction is required. Friction, on the contrary, has no effect whatever in the production of galvanism; and so far from dry-

ness being necessary, the voltaic pile is drenched in acid fluids; yet are they both, though obtained by distinct processes, made subservient to the uses of men. (27)

The admirable Dr. Wollaston was the first who decidedly adopted the notion that the chemical action of the voltaic pile was a primary origin of all the changes produced, and the cause of the electrical effects. Sir Humphry

(27) We might cite other good authorities for discordances not easily accounted for: Mr. A. T. Thompson observes, that galvanism appears to differ in some degree from electricity in its *effects*, and the mode of its *production*. Aldini says, that if it be required to give a shock to the nervous system by means of electricity, a second shock cannot be produced before the action of the first is over. It is quite different in galvanism, by which a strong and continued shock may be obtained without making any change in the apparatus. The common electrifying machine produces no effect unless the patient be insulated; on the contrary, galvanism, when applied by means of a continual current, soon exhibits remarkable effects on the humours of the body.—See his General View of the Application of Galvanism, &c. &c., pages 55 and 56.

Davy had embraced at one time the same idea; but appears since to have abandoned it for the hypothesis of electric energies. The very ingenious Mr. Brande (28) supposes that in the voltaic pile the original source of electricity depends upon the contact of the metals. The *accumulation* must be referred, he conceives, to *induction*, which takes place in the electrical column through the very thin stratum of air or paper, and through water when that fluid is interposed between the plates. All I shall venture to adduce (in a question involving a research far too profound for my limited science) in support of my selection of a somehow altered or perverted distribution of the galvanic principle, however occasioned, as being perhaps the remote cause of the epidemic Cholera, is my having seen, as the fruits of positive experiment, that voltaism, or that particular modification of electricity, or by whatever name it may be called, possesses an

(28) See Manual of Chemistry, vol. i, page 279.

unequivocal relation to the phenomena of life! Nay, Dr. W. Philip, in his *Experimental Inquiry into the Laws of the Vital Functions,* has concluded, that the identity of galvanic electricity and nervous influence was established. Dr. Ure is unwilling to go quite so far, although he says that Dr. Philip's experiments show a remarkable analogy between the two powers, since the one may serve as a substitute for the other: a conclusion reasonably enough deduced from this curious fact, that the eight pair of nerves distributed to the stomach, and subservient to digestion, in several rabbits, having been divided in the neck; after the operation, the food which they had eaten remained without alteration; and the animals previously evincing much difficulty of breathing, seemed to die of suffocation. But other rabbits similarly treated, and kept under the influence of galvanic action for twenty-six hours, showed no difficulty whatever in breathing; and the animals having been killed, the food (parsley) was found in *a perfectly*

digested state! Thus galvanism performed the office of nervous influence *in the process of digestion!* In like manner, by the assistance of the galvanic fluid, did Dr. Philip give decided relief, in no less than twenty-two cases of asthma; drawing the following general inferences from his multiplied experiments—"That galvanic energy is capable of effecting the formation of the secreted fluids, when applied to the blood, in the same way in which the nervous influence is applied to it; and of occasioning an evolution of *caloric* from arterial blood." In short, he says, "that galvanism appears to be capable of performing all the functions of the nervous influence in the animal economy; but obviously it cannot excite the functions of animal life, unless when acting on parts endowed with the living principle." And I may add, that I am the more confirmed in the theory I have adopted, regarding the influence that the galvanic fluid exerts in the frame of man, since I learnt the curious fact discovered by Mr.

Pelletan, and brought forward by him at a sitting of the Royal Society at Paris, so late, I think, as the 3d of January 1825; which is, that he had observed in the operation of acupuncturation, that the galvanic fluid was constantly disengaged from a needle, which had been plunged into the human body (29). With such facts then before us, and with the conviction we have, that in the epidemic Cholera there is a singular sinking of the vital energy, and that this lowering of the powers of life is particularly evinced by the almost constant derangement of the first passages; with such facts, I say, in our hands, will it be presuming too much to suppose, not only that a temporary alteration or perverted distribution of the voltaic fluid

(29) Aldini informs us that the sense of smelling is the only one which has been found impracticable to excite by galvanism; but that by it a sensation of light has been given to the blind, a degree of hearing to the deaf, and that with it he had much diminished that painful torpor with which the melancholic are often afflicted.—See work above cited, page 65.

may constitute the remote cause of the malady, but that we may look to a judicious application of it as a remedy, from which much benefit might be expected ?

It is now time, Honourable Sirs, that I should come to the more immediate purpose of this communication ; which is, to lay before you the result of my own experience in the *Sporadic* Cholera Morbus in India ; and, as that malady is now understood to be the same, but in a lower degree, with that which has lately called forth much serious investigation, to offer some opinions with regard to the mode of treatment which I should recommend to be tried in its more severe type. If what I am about to suggest, and I do it with great diffidence, does not prove successful, it at all events can be attended with no bad consequences; and, whatever may be the issue, the attempt will at least be allowed to be not altogether unworthy.

Having often, while on the Coromandel coast, been disappointed in giving a decisive check to

Cholera Morbus, by the usual means of powerful stimuli, antispasmodics, blisters, warm embrocations, &c., I concluded that I must be wrong in theory, so looked for other means of relief. On examining, as already observed, what is usually vomited on such occasions, I invariably found it of an acescent nature ; and, on more minutely questioning those who were labouring under the disorder, I discovered that, in every instance, the ailment could be traced to some acid or acescent substance, such as limejuice of a bad quality, unripe fruit of any kind, crude vegetables, buttermilk too long kept in hot weather ; or, what often happened, the toddy of the cocoa-nut tree or palmyra-tree drank in a state of fermentation. So much having been ascertained, I lost no time in having recourse to antacids, and generally gave a preference to the sub-carbonate of magnesia, in a full dose (30),

(30) Seldom less than two drachms and a half, or three drachms ; this I found a more certain remedy than the liquor potassæ, or the

in a little tepid water; and so effectual was the remedy, that I found in very few instances indeed that I had occasion to repeat it. The offending acid was by this means neutralized, the distressing vomiting ceased; the patient had perhaps a few loose stools; a re-action took place in the frame; the natural warmth was in consequence restored to the extremities; the pulse became fuller and slower, and a tranquil sleep soon supervened, to crown the whole, from which the patient never failed to awake free from complaints. Should, in other cases, all nausea be perfectly gone, but still there be a little offending bile passing downwards, I ordered as far as four grains of calomel, made into pills, with ten or twelve grains of rhubarb, and a little cinnamon, at bed-time: if, on the other hand, though the vomiting had ceased, the patient had been much exhausted, and the

the subcarbonate of potass; or than soda or lime-water, or even than the liquor ammoniæ, which is considered as a powerful ant-acid, in doses of from fifteen to twenty drops in a little water.

bowels were completely unloaded by the purging, then I found a gentle opiate could be given with the greatest advantage; the enemy had been corrected and dislodged, so that all that remained to be done was but to sooth. And it is worthy of notice, how much the Cholera Morbus of India appears to differ from the disease as met with by Mr. Brown, of Musselburgh, who says, "I prescribed, chiefly as a *placebo*, a mixture of carbonate of magnesia and cinnamon water; and even this I never saw retained upon the stomach until the opiate had taken effect"(31). Now I always found that, till the cause of the vomiting was removed, which I had ascertained to be an acid, I might indeed lull the malady for a short time by means of an opiate, but I could do no lasting good. With this simple remedy—I mean the antacid—I hesitate not to say that I have saved many hundred lives:

(31) See a well-written account of Cholera, as it appeared in Scotland in the years 1796, 1798, and 1800, by Mr. T. Brown, page 19.

Since my return to England, I have ordered it with equal success; and, in one instance, to a lady in a most alarming situation, who, previously to taking it (the subcarbonate of magnesia), had been brought to the brink of the grave, having used various antispasmodics, and many both internal and external stimuli, in vain. And, in support of this method of treating the disease, I could now ask one of the most distinguished physicians in London, whether or not he does not find the antacid just named an absolute specific in Cholera Morbus, provided it is administered in time.

I should then, Honourable Sirs, beg leave to recommend the same medicine at the beginning of every case of epidemic Cholera, and, if necessary to be repeated, with the addition of a little powdered ginger, till such time as the exciting cause of the vomiting was removed; nay, as a still more extended measure for correcting the acescency, I would advise the giving *enemas*, prepared with magnesia, to be also repeated if

occasion required. I am now aware that it may be urged, that, whatever might have been the case with regard to the sporadic attacks which I witnessed in India, it does not appear that any acid or acescent substance is required to be taken into the stomach, to occasion vomiting in the commencement of the epidemic disease. To this I reply, true; but it will be remarked, that, though not taken into the stomach by deglutition, at all events that degree of acidity, which ever more or less attends indigestion (32), is produced by the operation of the great morbific cause, bringing on a sinking of the nervous energy, and especially manifesting its malinfluence by deranging the first passages, and chiefly the gastric juice. (33) And here is perhaps one

(32) The acid produced in such cases of dyspepsia has been ascertained by Prout to be the muriatic acid.

(33) Nay, we know, by late ingenious experiments by Mr. Prout, and which may be seen in part I. of the Philosophical Transactions for 1824, that the contents of the stomachs of various animals which had been fed in the usual way, shewed, when ana-

leading distinction betwixt common Cholera Morbus and the disease when become epidemic; that, in the first, an acid or acescent substance taken into the stomach, proves the *exciting cause;* in the other the acescency is secondary, becoming one of the symptoms, induced by the sinking of the nervous energy, which we hold with Mr Orton to be the proximate cause of the disorder. If, then, an antacid will correct one offending acid, it equally will another, though that acid may not have been generated exactly in the same way. To neutralize the acid in the stomach, however, and thereby remove the vomiting, would be only allaying one of the symp-

lyzed, that in *healthy digestion,* the *muriatic acid free,* at all events unsaturated, was a constant component part; and we also know, that Spalanzani, although he concluded that the gastric juice in its pure state was neither acid nor alkaline; yet that *chyme,* when examined chemically, was very generally found to be of an acid nature. Now may it not be, that the great exciting cause of Cholera may operate by increasing this tendency to acidity, and changing its quality from sanative to morbific?

toms of the malady; but as that is by far the most frequent, and a very distressing one, to mitigate it any how must be a great point gained. If the vomiting is kept up by the presence of an acescent matter, which we believe it to be, no wonder that antispasmodics and stimuli should so frequently be rejected for hours and days (34) together, till such time as that acid is removed; and we have seen that copious dilution will seldom or ever effect this. But nature herself has sometimes a surer remedy for the same end, that is bile, which, in mild attacks, when the spasms have not been so violent as to check its flow, the efforts in vomiting send upwards by regurgitation from the duodenum into the stomach; such cases always end favourably. Further, again, it may be argued against the plan of treatment now recommended, that *magnesia* had been already tried in cases of epidemic Cholera; and that, although it held out great

(34) See a letter from Mr. Assistant Surgeon Smith, in Mr. Scot's Report, page 34, Narrative.

promise at one time of proving an invaluable medicine, it had, like other remedies, ended by disappointing hopes. At its failure, however, given in the manner it appears to have been, *combined with milk*, I am not at all surprised, as, in this way, its vehicle contained the very principle of acescency, which the absorbent powder itself was intended to remove; and I maintain, that no stomach in a deranged state can ever, with impunity, receive into it milk, in any form, whatever it may do when the digestive power is undisturbed. If then, even with milk, this medicine was found in some cases evidently to be of service, how much more so must it have been without it? In fact, magnesia with milk, on such occasions, I conceive to be the very *bane and antidote* combined; the one most admirably counteracting any good that could have been expected from the other.

We all know that, for ages past, bile has been supposed to be the positive exciting cause of Cholera Morbus; and most of our modern wri-

ters, foreign (35) as well as British (36), still consider it to be so. Hence we hear much of the *Cholera Biliosa;* but this I cannot say that I have ever seen in the form it is usually described. That bile, during hot summers and in autumn, is secreted in greater quantity than in colder months, no one will dispute; that it will frequently bring on simple *diarrhœa,* I do believe; or, if pent up for days together from constipation, and when the patient has been at the same time exposed to inordinate (37) heat and fatigue,

(35) Of this Fontana (of Cremona) seems to make no doubt.—See his " Maladies qui attaquent les Européens dans les Pays chauds," pages 110—French translation from the Italian.

(36) See Dr. Ayres' Practical Observations on the Disorders of the Liver, page 90. Dr. Chisholm, on the other hand, allows bile only to be the cause of Cholera in cold climates; in hotter regions, he conceives a spasmodic state of the stomach to be the cause.—See his Manual of the Climate and Diseases of Tropical Countries, p. 85.

(37) Dr. Maclurg, in his work on the Bile, pages 111 and 112, supposes a redundancy of it to be best accounted for by the operation of heat, favouring the spontaneous degeneracy of all fluids,

and subsequently to the chill air of the evening, that it will give birth to *bilious fever* is what I can as readily conceive: but to produce any hing like Cholera, there must be, I presume, an acid of some kind or other in the stomach, either taken into it or generated in it; the bile itself, if poured into that organ, which it can only be by regurgitation from violent retching, so far from producing the disease, often puts an entire stop to it, by correcting one of its worst symptoms. Such were ever my opinions while in India, twelve years ago; and such, I have been pleased to find, are the sentiments of Dr. James Johnston, who observes, "The fact is, that I have long ago stated that the discharge of bile, in Cholera, is a

and accelerating that septic animal process by which blood is converted into bile. Dr. Saunders, on the other hand, in his work on the Liver, pages 134 and 135, says, that it is a wise law of the animal economy, that in warm climates a large quantity of bile should be prepared, of a more than common bitter and active nature, as by these qualities it is well fitted to correct and restrain the propensities to spontaneous and putrid fermentations.

secondary or ternary link in the chain of cause and effect, and always a sanative effort of the system, as well as a favourable symptom of the disease." Then, again, the absence of bile, in the first passages, has been brought forward as a cause of Epidemic Cholera; but how often do we see in cases of jaundice, when for weeks together the flow of bile into the duodenum is interrupted, yet no such affection takes place? The bile, then, beginning to be poured out on such occasions, being allowed to be a desirable feature of the disorder, why might not bile be administered like any other medicine, should the magnesia not have put an end to the vomiting? We are well assured that the physicians on the Continent have often recourse to it with the happiest effects, particularly in some of those affections which young women are subject to, such as Chlorosis Chorea, &c.; finding it gently tonic from its bitter quality, and at the same time aperient. Nay, we know further, that the Hindoos of Lower India prescribe for the Cholera Morbus

kóróshanum (Tam), which is a biliary concretion found in the gall bladder of bullocks in India; its Sanscrit name is *gorachánâ* : it is a favourite medicine, and is considered as cordial and alexipharmic. I should give a preference to the bile of a calf or an ox, as by calcination it would appear that the same salts are obtained from those which we find in the human bile; or in situations where calf-bile or ox-bile could not be procured, a mixture might be prepared to resemble it, as nearly as possible, in its natural qualities, by combining the various articles (38) which are known to constitute bile; or something of almost similar virtues might be composed, such as a solution of aloes in boiling water, to which is added a little

(38) It must be allowed, indeed, that *picromel* could not be procured, and that is the characteristic substance of bile; it resembles inspissated bile, is of a greenish colour, is intensely bitter, and has the absence of azote for its peculiarity. The first who obtained it from bile was *Thenard*. Mr. Brande says the process for procuring it is complex, and that he is doubtful whether it is a *product* or an *educt*.—See Manual of Chemistry, vol. iii. p. 186.

powdered Colomba root and a small portion of rhubarb. What there may be in bile, beyond its bitter and antiseptic qualities, to enable it to allay vomiting in such cases, it may be difficult to say; thus far is ascertained, that all the acids render it turbid, and separate from it a substance which has many of the properties of albumen. As vomiting and purging, and bile, when it does appear, can be considered as no other than symptoms of the general disease, so also are the spasms; but they are symptoms of a much more alarming nature, and seem to be induced by the morbid irritation excited by the frequent and painful exertion from vomiting. When they are present to a violent degree, they never fail to indicate a dangerous attack: being not only most exhausting in themselves, but, from constricting the mouths of the biliary ducts, are but too apt to prevent the flow of that fluid, which has been declared to be salutary. We see, however, as noticed in another part of this letter, that on some occasions, so powerful, so directly destruc-

tive of human life, is the great remote cause, and so rapid the sinking of the vital energy, that neither vomiting nor purging, nor bile nor spasms appear; but the patients expire in the course of a few hours, in spite of every effort to save them.

Mr. Scot, at page 51 of his Report, remarks the analogy that seems to exist betwixt the symptoms of the epidemic Cholera and those produced by certain vegetable poisons, such as that of the *antiar* and *tshettik* (39); particularly

(39) For an interesting account of those two poisons, the reader is referred to Mr. Crauford's valuable History of the Indian Archipelago (vol. i. page 467). The *antiar*, or what the Malays call *jpoh*, is one of the largest forest trees of the Archipelago; the poison or upas is in the outer bark, whence it flows, when that is wounded, in the form of a milk-white sap. The tree is common in every country of the Archipelago. The *tshettik* is a large creeping shrub; it is the bark of its root which affords the *upas* or poison: the shrub is confined to Java; its poison is much more intense than that of the *antiar*. The poison of the last-mentioned, inserted by means of a dart, kills a buffalo in little more than two hours; that of the tshettik in much shorter time. It would seem that botanists have lately bestowed on the *antiar* the appellation of *antiaris toxi-*

the first, which in its effects approaches, he says, the most closely of all the poisons of this class to the Cholera; and this gentleman's opinion, I perceive, is confirmed by that of Dr. Horsfield, who judged from actual experience while in Java, where the poison is produced. "Whilst," he observes, "the narcotic influence of the *tshettik* was directly upon the brain and nervous system, that of the *antiar* operated chiefly on the stomach (40) and bowels. (41) Mr. Scot, while he has with great candour questioned the

caria; and on the *tshettik* that of *cerbera oppositifolia.* I perceive, however, that Orfila refers the last to the genus strychnos.—See his work, vol. ii. part 1, page 308.

(40) See Dr. Horsfield's account of the upas poison, in the Transactions of the Batavian Society, vol. vii.

(41) The *upas tshettik* and *upas antiar* have both been carefully analyzed by Pelletier and Carventon; the active ingredient of the first appears to be *strychnia* united to *igasuric* acid, and two colouring matters; the latter substance is composed of a peculiar elastic resin, a gummy principle, and a bitter ingredient, concentrating in itself all the noxious qualities of the poison.—See his Ann. de Chem. et de Physic, Mai, 1824.

probability of Mr. Orton's remote cause, has not ventured to say any thing decidedly on the subject from himself, but remarks generally (page 52), "that Cholera is a disease endemical "to a hot climate; that it is under the influence "of a climate of that description that the human "body is disposed to fall into the morbid action "which constitutes Cholera. What that influ-"ence is, or how it should be liable to change, "so that at one period the disease is scarcely "known, and at another it spreads like an epi-"demic, we are entirely ignorant. The disease "is natural to India; and its late prevalence is "no more a proper subject of surprise than its "long preceding absence. We can form no ra-"tional conjecture how the morbid state of the "brain and nerves, which is supposed to con-"stitute the proximate cause of Cholera, can "arise without the intervention of an external "exciting cause, though we are not warranted "to conclude that this is impossible." And then again, at page 61 of his Report, he says:

"Cholera is a very dangerous disease, and so "many circumstances occur in aggravation of "its natural fatality, *that we can scarcely hope "that any mode of treatment well can be devised, "which will strip it of its formidable character.*" These are indeed most hopeless words!

To his Report Mr. Scot has subjoined an abstract of returns, deaths, &c.; from which it appears, that amongst the troops of the Madras establishment of all descriptions, from the year 1818 to part of 1824, there were admitted with the disease 3,292 Europeans, of whom 756 died; and 16,984 natives, of whom 4,213 died. These numbers, it must be remembered, are confined entirely to the military force, and have nothing to do with the great mass of the population.

Various modes of treating the Cholera have been pursued at different times, since the malady first showed itself as a decided epidemic in 1818. The chief reliance seems to have been on antispasmodics and stimulants, external as well as internal; calomel, emetics, magnesia with

milk, the timely use of blisters to the head and feet, sinapisms to the abdomen, the nitric (42) acid given internally, warm embrocations, anodyne injections, and sand baths; changing the doses and repetitions according to circumstances. Mr. Scot has added to his publication several useful formulæ, (43) corresponding with the

(42) The nitric acid, I have been informed by my friend Dr. Gordon, had in some cases of Epidemic Cholera been administered with success; but this success must not be allowed to militate against the theory I have adopted, that the *gastric acid*, as it has been called, is a source of immediate mischief in the disease in question. This acid is altogether *sui generis;* and though to be corrected by antacids, it is a curious fact, that it is less likely to be produced by acid fruits and acescent vegetables than by made dishes and high-seasoned food, which but too often weaken the powers of the stomach, and, according to the ingenious experiments of M. Magendie, must thereby prevent the rapid absorption of fluids from the stomach, which is continually going on while that organ is in a healthy state.

(43) As a good sinapism for the stomach, he recommends powdered mustard-seed, half a pound; powdered capsicum and powdered ginger, of each a drachm, made into a cataplasm, with vinegar;

modes adopted; and also some instructions from a medical officer, whose name is not mentioned: this gentleman directs that the *first* thing to be done is to administer a draught consisting of tincture of opium and sulphuric ether, of each a drachm; if this is vomited, repeat every time, in ten minutes; half an hour after the vomiting has ceased, he gave the following bolus:—calomel, twelve grains; camphor, three grains; opium, one grain; oil of peppermint, two drops: if this was vomited up, it was repeated in half an hour. When there is no vomiting at all, he advises that the sufferer should take this draught: tincture of opium and sulphuric ether, of each half a drachm;

to which is added two ounces of oil of turpentine. The following he recommends as an antispasmodic mixture: camphor mixture, one pound; laudanum, six drachms; aromatic powder, three drachms; *mix:* of this two ounces are a full dose. As an antispasmodic draught, he ordered brandy, an ounce; water, an ounce and a half; tincture of opium, fifty drops; tincture of capsicum, two drachms; *mix.* As a stimulant draught, he gave powdered capsicum, a scruple; powdered pepper, two scruples; water, two ounces; *mix.*

ipecacuanha wine, half an ounce; water, two ounces, *mix*. And after that is vomited he prescribes this bolus: calomel, twelve grains; extract of jalap, four grains; camphor, three grains; opium, one grain; oil of peppermint, two drops; *mix;* and if this produced no effect, the draught was to be repeated after forty minutes. Amongst other remedies recommended by Mr. Scot, he mentions a blister for the abdomen, prepared with boiling water, as often proving beneficial in critical cases; a fact which I can easily conceive, as in this way a blister (44) is raised at once.

For some time past the medical men of the East, having found, from the frequency of death from Cholera, even when the patients had been attended to with the greatest care, that some other plan must be adopted, have had recourse

(44) A useful blister has also been prepared with the nitric acid, as was experienced by Mr. Powell, of the Bombay establishment.—See Chisholm's Manual of the Climate and Diseases of Tropical Countries, page 85.

to bleeding, and in many instances with good effects. Mr. Corbyn says, that while he gave to natives fifteen grains of calomel, washing it down with sixty drops of laudanum and twenty drops of oil of peppermint, in two ounces of water, he would strongly recommend, that in treating the malady in Europeans, copious bleeding should not be omitted; and never less than twenty grains of calomel and twenty drops (45) of oil of peppermint, in two ounces of water, be administered. On the spasms attacking the abdomen, he recommends a blister to the part; should the blister fail in drawing, and the blood not flow from the veins, he says the patient should be put into a warm bath; when the vomiting and purging are incessant, he gave, without hesitation, eighty drops of laudanum, with twenty drops of oil of peppermint, and

(45) See Reports of the Epidemic Cholera which has raged throughout Hindostan since 1817, and published at Bombay, page 4 of Appendix.

twenty grains of calomel, injecting at the same time forty drops of laudanum in rice water, by *enema*. Of bleeding, Mr. Scot observes, "it was "first thought of in cases where there was much "spasm, consequently much re-action. On such "occasions the relief was obvious and immediate, "and the practice was in consequence established. "Much has been said for it," he adds, "and "much against it. The advocates for it, allege "that nothing less than thirty ounces taken away "will do good; when those who are against it "declare, that if the circulation is in a state to "stand such a depletion, the case must have been "mild, and the patient would have got over it at "any rate;" concluding by observing, "it must "be confessed that fatal collapse suddenly follow-"ing large bleedings, has lately staggered the faith "of many practitioners." It is but too true, then, that this appalling distemper still continues, in numerous instances, to baffle the best skill of many able and humane men; one of whom, who has lately returned from India, Mr. Goldie, late

member of the Medical Board of Madras, has just informed me that he had witnessed several cases when bleeding freely at the commencement of the disease, by relieving internal congestion, had no doubt saved the patients; but, alas! he added, that in others it did no good; and that, with regard to the large doses of calomel which have been so much vaunted, he had occasion but too often to observe that that powerful mineral, in severe attacks, not unusually lay in the stomach altogether inert!! (46)

(46) The large doses of calomel lately given in India for the Cholera, seem to have been first liberally used by Mr. Corbyn, from a notion which he had adopted, that although this mineral, in the quantity of from five grains to eight, operated as a *stimulant*, in larger portions, such as twenty grains, it was a *sedative*.—See Bombay Report on the Cholera, Appendix, page 3. He does not appear, however, to have made a convert to this opinion of Mr. W. Scot: on the contrary, that accurate observer says, that the success of those who used calomel in large doses was not greater than that of those who did not; and that when it had been given to great extent, it had been found, after death, coating the internal surface of the

If Mr. Scot's words were hopeless, these are, it must be confessed, but little more encouraging.

Before noticing the medicines which are in use amongst the natives of eastern countries in cases of Cholêra, and which will conclude this, I fear, already too long letter, give me leave, Honourable Sirs, briefly to recapitulate the notions I have been induced to entertain respecting the malady in question; and as briefly to state, under one view, the plan I should hope might be found at least worthy of a trial, with a view of mitigating its severity.

It having been then granted that the epidemic Cholera is but the Cholera Morbus in its most severe form, and my having fully ascertained that, in ninety-nine cases of a hundred, the cure for that was simply an antacid, and that the best was calcined magnesia; I should with great

the stomach, lying embedded in greenish mucus, marks of INFLAMMATION being visible on the spot (see Mr. Scot's Report, page 57): consequently, acting like any thing but a sedative; perhaps rather by its actual weight and pressure.

confidence order it at once, in the more serious affection, in a full dose, but in tepid water, *not* milk, and also by *enema* in barley water; previously, however, having recommended a purgative injection, from a conviction that nothing contributes so much to relieve the stomach as what gives a tendency downwards to offending matter. Should the magnesia be rejected, I would instantly repeat it, and with it a good portion of powdered ginger or black pepper; and then, fearing the case likely to become extreme, I should order a small blister to the inside of the lower part of each leg, to keep up as much as possible the vis vitæ in the extremities. Supposing, however, but which I never experienced in the sporadic disease, that the magnesia came up again and again, I should look for the flow of bile (which the violent straining often excites) as a something that might come to my aid; and, in promoting this, I have frequently found hard rubbing with the hand upon the region of the liver prove successful. If also

here disappointed, I should (still considering the cause of the vomiting to be of an acid nature, and such a one as must not be shut up by an opiate) have recourse to some other antacid; for surely we may question the policy of closing the gates of the garrison, whilst the enemy still storms within. I cannot but express a regret that more (47) had not been done to ascertain,

(47) I can find but one solitary instance of any examination of this kind having been made; and that was by the intelligent Dr. P. Scot, of the Madras establishment, as is noticed in Mr. W. Scot's Report, page 58. It was in a case that terminated favourably, when nothing had been given internally but magnesia and milk; he says he discovered no acid in the discharges, so was at a loss to imagine how the medicine could have cured the disease, but supposed the bland nature of the milk must have allayed the acrimony, and so put a stop to the vomiting. No! it was the antacid, the magnesia that was in this case sanative. I am of opinion that the fluid vomited up on such occasions somewhat resembles what is eructated in *Cardialgia Sputatoria,* which in certain instances is much less marked by an acid than in others: this is a disease Dr. Good believes may probably owe its existence to a peculiar

by chemical analysis, what was the peculiar nature of the fluid vomited up; for to be told that it is greenish, or turbid, or whitish, can avail us nothing. Should the administration of antacids succeed in stopping the vomiting, little more will be necessary than next morning to carry off what bile may have been stirred up by some purgative medicine—such as the compound colocynth pill with a little calomel; and if any opiate is given to sooth, after all the offending matter is worked off, it ought to be of the gentlest kind, caution being used that no food is taken for some days of a nature at all likely to renew the irritation of the stomach. Weak, well prepared coffee, without milk, with

peculiar inactivity of the proper absorbents of the stomach. It may have been a case in which the acid principle was much diluted, that Mr. P. Scot alludes to, so not easily detected; for true it is, in complaints of this nature, to use the words of the enlightened author just named, "The existence of an acrimony from *acidity* seems to be common to all its varieties."—See Dr. Good's study of Medicine, vol. i. page 125; also, 123 and 126.

a little toasted bread, I found the safest diet on such occasions. Nay, I have had reason, in more cases than one, to think that coffee so prepared had peculiar virtues in checking vomiting; and we shall by and bye see that the inhabitants of Luconia take it with this view (48). If, in spite of all I had done, the vomiting still continued, and that it appeared from what was passed by stool that no bile flowed into the duodenum, owing, perhaps, to the severity of the spasms constricting the mouths of the biliary ducts; I should try what could be done by giving either half an ounce or an ounce of calf's bile, or that of the ox a little diluted, and repeating the dose if necessary; or, if neither of these could be got, by administering the aloetic mixture already mentioned. Then, indeed, if all these means failed me, and the disease was evidently not to be got under by the method I had pursued; I should conclude that the great remote cause

(48) Weak, well-prepared pepper water, with a little toasted bread, may be safely taken, or ginger tea made not too strong.

was too powerful for the weapons I had used against it; or if, in the first instance, so direct and overpowering was the morbific influence, that neither vomiting nor spasms were present, I should have recourse at once to galvanism, to supply the deficiency of nervous influence in the sinking frame. This should be, without loss of time, directed (49) by some skilful hand to the region of the stomach, brain, liver, and heart, and to be continued as long as circumstances might render it necessary. But with regard to the last organ, as it would appear from Dr. W. Philip's earliest experiments that the circulation of the blood was, in a great measure, *independent* of the nervous influence, and therefore not so likely to be acted on by galvanism as the

(49) In Aldini's mode of applying galvanism he requires no incision to be made in the integuments, but that the patient should be simply laid on a sofa, and covered with the clothes.—See Aldini's General Views of Galvanism to Medical Purposes, pages 55 and 56.

other part, there might be no harm in ordering the patient, at the same time, to inhale oxygen gas, which has been proved to be a powerful supporter of respiration and animal life. Together with these, yet questionable remedies, others of a minor nature might with advantage be resorted to; such as warmth, sinapisms, stimulating embrocations, &c. If disappointed, however, and it is by no means impossible, in realizing the hopes which I had entertained of being able either to put a stop to the vomiting and purging by the means I have proposed; or, in more serious cases, to renovate the sinking energies of the frame by the use of the most powerful agent that has hitherto been proposed, I should then, in perfect accordance with Mr. Scot in the sentiments he has expressed, however despairingly, recommend a judicious selection from those medicines and means which the zeal, talent, and industry of the different medical officers now in India have put the public in possession

of (50): a body of men who have been eloquently eulogized by a distinguished writer, by one who cannot be accused of being lavish of commendation where he does not conceive it to be justly due, and whose creed we beleve to be, and it is the best,—that, in the present state of science in England, infinitely more good is to be done by a close and somewhat rigid examination, than by a flattering and less discriminating applause. If disappointed, I repeat, it will at least be admitted that little time could have been lost in giving a trial to the mode which I had suggested. In its failure I should but join the numerous band of those who have hitherto laboured in the same good cause: if, on the other hand, it shall be found

(50) I cannot here refrain from mentioning the good effects I have known derived from changing *situation* and *air*, at the very commencement of ardent remittant fever in India; and have heard of one instance in which Cholera had been checked by the same means: the gentleman had been taken ill over night, but made a powerful exertion, was carried on next morning with the army, and by a little care was in a few days quite well.

that I have had the good fortune to throw even one feeble ray amidst the gloom which has so long prevailed, the reward will be in my own breast, where nothing can ever be received with indifference which is at all connected with the prosperity and happiness of our Indian dominions.

It was observed by Arrian (in Indicis 15, sec. xii.) that the Indians had few diseases; and it was said by *Pliny* (51), as well as *Ctesias* (52), that they were remarkable for their longevity. With regard to the last peculiarity, it does not appear to hold good in these days. There are, no doubt, several maladies frequently met with in colder climes, from which the Hindoos are altogether exempt: others occur amongst them but seldom, such as typhus fever, consumption, and scarlatina anginosa. The small pox, before vaccination had become so generally adopted, was at times a most fatal infliction, though it

(51) Hist. Nat. lib. 7, cap. ii.

(52) In Jndices apud Photinum, cap. xv.

ought not to have been so, as the Hindoos knew how to render it milder by inoculation, which was commonly practised in India many hundred years before it was thought of in Europe, and the operation performed by the *Tikkar Brahmins* by means of a pointed instrument. With regard to the measles, it would not appear that the ancients were acquainted with it. The first writer who notices it, is *Aaron*, a physician of Alexandria, who published in A.D. 622, and wrote in Syriac: the Arab writer, *Rhazes*, gives a full account of it in his work entitled "*Continent.*" The measles, like small-pox, seems originally to have been brought from Arabia, and Arab physicians describe both under the same head. Hence it may be that the Hindoo doctors also reckon the one but as a variety of the other, calling the small-pox, *Perie Ummay*, or large *small-pox;* and the other, *Chin Ummay*, or small *small-pox.* The measles is a much less dangerous disease in Hindoostan than in England, and commonly makes its appearance in December and January.

There are no well authenticated instances of the plague ever having reached our Indian shores; indeed, I am inclined to believe, that if it ever does so, the scorching and purifying winds which prevail at certain seasons would soon put a stop to it, in the same manner as, by Sir Robert K. Porter's account, great cold arrests its progress at Constantinople (Travels in Persia, vol. i. p. 6.) The seat of this malady has been uniformly referred to Egypt, and it was supposed by Thucidides to have been imported from the borders of that country to Athens, where it first showed itself in 433, A.C. Into modern Europe it was no doubt introduced by means of the Crusades. Savary, however, in his "Lettres sur l'Egypt," says, that it was not in that territory, but at Smyrna that the disease originated. We read of it at Malta, in *Contaro's* description of that island in 1592: we know it was at London in 1593. With regard to the farthest eastern point to which the plague has ever extended, it may be difficult to say with

precision. Russel treats of its ravages at Aleppo, which is in longitude 37° 25′ E.: it has visited Moscow, which is in longitude 37° 31′, and almost depopulated Bussora and the neighbouring districts, which are in longitude 57° (53). Sir John Malcolm informs me that this dreadful scourge has been occasionally felt in the western tracts of Persia, seldom travelling farther east; and that a disorder much resembling it had at different times testified its malignity on the east bank of the Indus. Sir Robert K. Porter states (Travels in Persia, vol. i. p. 9) that the plague was most destructive at Edessa in 1812; and the same gentleman tells me, that in his recollection (thirteen years ago) it had been at *Teflis*, which is in longitude 65° E.; and, about two hundred and fifty years ago, at *Tabreez*, when that city was in the hands of the Turks. Nay, we learn from M.

(53) The Arabs are but too well acquainted with the plague, though it is said seldom to reach to the interior of their country: they give it the names of *Tavon* طاعون and *Wuba* وبا

de Guignes, in his "Voyages à Pekin, Manille et l'Isle de France," (page 329), that in the year 1503 this infliction was as far east as the southern provinces of China, where it is called by the natives, *Ouen-pen.*

I have said that India is exempt from the plague: it would be happy for those dominions were such also the case with regard to leprous affections, which are there both frequent and frightful.

Epidemic fevers have occasionally, I presume, in all ages, proved most destructive in our eastern territories. A disease of this nature is alluded to by Orme, in his history of Hindostan, as taking place, we believe, in consequence of the great irregularity of the seasons in 1757 (see his History, vol. ii, page 201.); and to a similar cause did we trace that which prevailed in Southern India in 1809, 1810, and 1811. But let me now recur to our more immediate object, which I do by observing, that in the medical works of the Hindoos (and these are

very numerous) there are various disorders distinguished by violent vomiting, purging, sinking of the powers of life, &c., &c., so that it is difficult altogether to ascertain which may be considered as the real Cholera Morbus. It appears, by a letter in the Madras Courier, mentioned by Mr. Scot, to be treated of in the *Chintamoney* (54) of Durmuntrie under the names of *Vidhuma Vishuchi*, and *Stanga;* for it is ordered a complex prescription, termed *Amanda Rasa B'hairavum*, which, amongst other ingredients, contains sulphur, mercury and soda. I find it fully described in a *Tamool Sastrum* called *Vytia Anyouroo*, composed by *Aghastier*, in Yellacanum (poetry): it is there named in Tamool, *Sartikunmum*, and is said to come on with

(54) I found however, on referring to a list of Sanscrit Medical Works in my possession, that the *Chintamoney* is ascribed to an author named *Govindachary*, and not to *Durmuntrie:* this last wrote the celebratid *Curma Candum* in Sanscrit, and which Aghastier afterwards translated into high Tamool ; it treats of those maladies which are inflicted on mankind on account of their vices and follies.

"giddiness and coldness of the extremities, which symptoms are soon followed by excessive vomiting, which nothing can stop; to this succeeds a feeling of burning in the epigastric region, great prostration of strength, and frequently a copious discharge of bile."

In this way, I presume, a favourable case is meant to be described, as the account concludes, not with death, but the flow of bile, a fact which is so much additional testimony in favour of Dr. J. Johnston's assumption, that, on such occasions, the appearance of bile is positively sanative. In other parts of the same *Sastrum*, Cholera would appear to be noticed under the name of *Vandie*. In a medical work written by *Tummundrie*, in Sanscrit, and which is held in high estimation by the Hindoos, the disease is termed *Ennerum Vandie*, which literally signifies *vomiting and purging*. The following prescription for Cholera is taken from that work.

Take of the hairy portion of the stem of the *Shàdàmùngie* (Tam.), which is the Cyperus

stoloniferus of Kœnig, five pagodas weight; root of the *Tawmaray*, which is in the Nelumbium speciosum of Jussieu, one pagoda weight; *Vungāyum*, which is Allium cepa, fifty pagodas weight; *Shemboogha poo* (flowers of the Michelia champacca of Linnæus), four and a half pagodas weight; *Kóráshàmum* (biliary concretion found in the gall-bladder of a cow), two and a half pagodas weight; *Eloopei poo* (flowers of the Bassia longifolia of Linnæus), three and a half pagodas weight; *Vaypum poo* (flowers of the Melia azadirachta), four pagodas weight; *Yaylersie* (Cardamoms), three pagodas weight. Grind all the foregoing articles with fifty pagodas weight of *Vullay Kàrumboo Chaur* (juice of the white sugar-cane), add twenty pagodas weight of *Molei paul* (woman's milk); put the whole in an iron pot, and boil to a proper consistence; then form it into boluses, each about the size of a *Choonday Kài* (fruit of the Solanum pubescens); one of these is to be taken in the morning, and one in the evening, dissolved in a

little warm water, and so continued till a cure is performed.

The Cholera is very common on the Malabar coast, where it is termed *Nirtiripa,* in the Ma-lealic language. The Gentoos bestow on it the appellation of *Vantie;* by the Mahometans of Lower India it is designated *Dank Lugna*; its Hindoostanic name is Murghee (death); its Mahratta name is *Tural,* also *Morshee.* The Brahminical Doctors of Lower India speak of it under the appellation of *Chirdie Rogum,* but its proper Sanscrit name in Upper Hindostan, is श्वेतरस *Swétărăsă* (55), and hence the corrupted Hindoostanie term of *Seet-rus* سيترس. The Arabians call it *El-Houwa* الهوا, which literally implies that it is in the air; they also call it the Indian plague, according to Dr. Rheman (56), in his *Account of the Progress*

(55) Which Dr. C. Wilkins informs me may mean white fluid.

(56) See Edinburgh Medical and Surgical Journal for January, 1825, pages 222 and 223.

of the Cholera Morbus from India to the Mediterranean and Caspian Seas. There is a tradition in Arabia (57), that this very disease, about five hundred years ago, originated in India, extended itself over Egypt, Nubia, and Abyssinia, and finally disappeared in the deserts of Africa. Other Arabic names for the disorder are تيو انباع دراع and *Hayzét* هيصت, by which last it is also commonly known to the Persians (58), whose country it appears first to have reached (Schiraz) in the month of August 1821; they prescribe for it powdered bezoar, in conjunction with a small quantity of black pepper

(57) The reader may find the notions of the Arabian Physicians regarding Cholera, in a work entitled "Tuzkerry Tuswiedi" تذكره تسويدي, written by Mohammed Ishak.

(58) The Persian works in which some account of Cholera Morbus may be found, are entitled معدن شفا *Madeni Shefa*, written by Aby Ben Hussein of Bokhara, in A. D. 1364, and راحت ال نسان *Rahet al Insan*, written by Abdal Cuvvy Ben Shehad, in A. D. 1376.

in powder and a little water, with the greatest success; a fact I find also noticed in the Asiatic Journal for November 1818. Which of the bezoars it is I cannot say; perhaps that known to the Arabs of the desert as *Hejir Atis*, هجر اتس which literally means *goat's stone*, and which consists almost entirely of phosphate of ammonia and magnesia: another variety of bezoar the Arabs term *Faduj* فادج.

The Malays prescribe for the Cholera Morbus, coffee; a lesson which they in all probability learnt from the natives of Manilla, who use it continually for that complaint, and I understand successfully: it is also a curious fact, that the Roman physicians were in the habit of ordering for it a kind of coffee, prepared with torrified lentils (59). The Malays often speak of the disease under the title of *Moontaan* مونتان, signifying vomiting, and which we believe to be, properly speaking, a Javanese word.

(59) See Pliny's Natural History, book 22d, chap. 25.

In a former part of this letter I noticed the vast range of territory over which the Cholera had extended its ravages. It would appear that the Russian dominions had been first assailed by it in June 1823, at the same period that it broke out in the environs of Laodicæa, and about Antioch. The Chinese have bestowed on it various epithets expressive of its dangerous nature; that in common use is *Ho-lwan*, and it is supposed by them to be occasioned by eating *seen jow tae tsing sin* (60), which signifies the fresh seeds of the water-lily, when the centre of them is blue.

Dr. Rehman, already quoted, finishes his very interesting memoir on the progress of the Epidemic Cholera by these remarkable words:—" It has passed over 90° of longitude and 66° latitude. The Philippine Islands form the eastern, and the borders of Syria the north-western, limits of this disease. The Mauritius (as far as is known) is the most southern, and Astracan the most

(60) See Morrison's Dictionary of the Chinese Language, article Cholera.

northern point to which, up to the present time, it has extended. Thus has it, in one direction, crossed the equator and approached the boundary of the southern tropics; and, in another, passed through the northern tropic into the temperate zone." But, with all this, it does not appear that in any instance the disease proved contagious. (61)

(61) This is no place to enter at length upon the question of contagion, which has lately elicited so much discussion among the statesmen and faculty of the British empire; a discussion, too, which seems likely soon to lead to some important changes in our quarantine laws; alterations which, if made, will, I hope and trust, come to us guarded with all that caution so momentous a subject demands. Two diseases, for ages considered as contagious, are now by many no longer supposed to be so—the plague and yellow fever; and certainly Dr. Maclean and several others, who advocate this doctrine, have brought forward very cogent reasons in support of it; but by far the most eloquent and able writer in defence of the new theory is the author of an article in the Westminster Review for January 1825 (page 134). I have never seen a case of plague nor yellow fever—for, thanks to Heaven! India has hitherto remained exempt from both; but typhus fever I have there met with, and can safely state this much respecting it:—In Hindostan, as in all tropical regions, owing to the great desire there is for cool air, the

Permit me, Honourable Sirs, to apologize for having so long obtruded on your time; and, in the sincere hope that an early communication

wards and sick rooms in hospitals are kept continually exposed to its free current from without, by means of open windows and verandas, so that the circle of contagion is very limited; consequently before a typhus fever could be caught, the sound person must be in close contact with the sick. Hence it is, that patients in the same apartment with the sufferers, but at the distance of five or six feet from them, escape; while the comrades of the infected who had undertaken the charitable office of washing them, feeding them, and turning them in bed, are but too often attacked by the disorder—the natural consequence of inhaling into their lungs the morbid effluvia, that noxious leaven (if I may so call it), which is at once the offspring and the reproducing source of the malignant malady. In this way I lost several fine young men, till I adopted the plan of making them take daily, during the time that they were so humanely employed, a certain quantity of strong decoction of bark, and eating liberally of ripe oranges, by which means I put a stop to the contagion. I shall only further observe, that I have known two instances of healthy men becoming actually consumptive, from sleeping in the same bed with their wives, while they were labouring under *phthisis pulmonalis*; and, in more diseases than I shall here enumerate, I should at all times fear the worst from breathing the air, on its immediately proceeding from infected lungs.

from the East may bring the pleasing intelligence, that the dreadful Hydra we so strongly deprecate has at length fled, and that peace, that best of all blessings, has crowned our victorious arms,

Allow me to subscribe myself,

Honourable Sirs,

Your obedient

And most faithful Servant,

WHITELAW AINSLIE, M.D.

February 12, 1825.
39, *York-place, Portman-square.*

POSTSCRIPT.

Since writing the foregoing observations, I have learned that the Cholera had made its appearance in some of the Italian States. This I am inclined to doubt; but that it has shown its frightful aspect in Syria, I can well believe. In 1820 it raged at Luconia; in Siam, in the Birman empire, it was so destructive in 1821, that in the capital alone, *Bancok*, 40,000 souls perished. In less than two years it is said to have carried off half a million of people in Java. At *Tabriz* in Persia, in 1822, 4,800 inhabitants died of it in twenty-five days; and it was almost equally severe at Cochin-China about the same period. Whatever may be finally found to be the great remote cause of this malady—whatever

the best remedy for it—that it may never reach the shores of our dear native land, is the anxious prayer of,

Honourable Sirs,

Your most obedient Servant,

W. AINSLIE, M.D.

March 25, 1825.

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